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MECHANISMS OF RESISTANCE OF THE OPOSSUM TO SOME SNAKE VENOMS

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Opossum (Didelphis, g.) of several species showed a natural resistance against the pharmacological action of some snake venoms. VELLARD (1949) observed the resistance of Peruvian species of Didelphis against the venom of snakes of the Crotalinae family. More recently WERNER and VICK (1977) showed the resistance of Didelphis virginiana against the envenomation by the venoms of Crotalus and Agkistrodon species.

Three mechanisms, at least, may be playing a role in the resistance of these animals to envenomation: 1) Presence in the serum of a compound neutralising the action of the venoms; 2) Low sensitivity of the animal receptors to the autopharmacological substances released by the venoms; 3) No release or release of low quantities of the autopharmacological agents responsible of the animal envenomation.

In the present abstract the presence of a serum component neutralising some of the pharmacological actions of the venoms of Crotalidae family is related:

1. The serum of Didelphis injected by intraperitoneal route (around 6 mg/protein = 0.1 ml serum) protects mice against the action of the venoms of Bothrops jararaca and Crotalus adamanteus (LD = 100 %).
2. The protective effect of the serum against the venom lasts up to 24 hours.
3. The serum has protective action against the necrosis induced in the foot of the rabbit by the injection of the venom of B. jararaca.
4. In mice the serum did not afford protection against the venom of Crotalus durissus terrificus. Nevertheless, the Opossum itself is resistant to this venom.
5. A fraction was isolated from the Didelphis serum, by chromatography and electrophoresis, which possessed the protective properties of the serum described above.

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